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WETLAND BOUNDARIES • POND & LAKE MANAGEMENT • CONSTRUCTION FEASIBILITY CONSULTATIONS • ENVIRONMENTAL STUDIES

SOIL REPORT

Date: October 23, 2019

By: Steven Danzer Ph.D.

- Soil Scientist
 - Nationally certified by the Soil Science Society of America (#353463).
 - Registered with the Society of Soil Scientists of Southern New England.
- Professional Wetland Scientist
 - Society of Wetland Scientists PWS #1321
- Arborist
 - Certified by International Society of Arboriculture (ISA) NE-7409A
 - Licensed CT DEEP S-5639
- Ph.D. in Renewable Natural Resource Studies.

Project Site: 40 Morley Lane, Darien, CT

INTRODUCTION

A wetlands investigation was performed on the above-referenced property to locate and identify any inland wetland soils or watercourses.

The purpose of this report is to document that the field work for the site investigation was conducted using professionally accepted methods and procedures. This report is intended for submission by the owner(s) of the property or their designated agent to the local municipal regulatory agency.

DEFINITIONS

The Connecticut General Statutes Ch. 440 Sections 22a-36 and 22a-45 (as amended) define **inland wetlands** as land, including submerged land (except for tidal wetlands) which consist of any of the soil types designated by the National Cooperative Soil Survey as *poorly drained*, *very poorly drained*, *floodplain*, or *alluvial*.

Poorly drained and **very poorly drained** are soil drainage classes that are defined by specific technical criteria in the Soil Survey Manual, Ch. 3 of the USDA Natural Resources Conservation Service. Generally speaking, *poorly drained soils* are wet at shallow depths periodically during the growing season, or remain wet for long periods, while in *very poorly drained soils* water is removed from the soil so slowly that free water remains at or very near the ground surface during much of the growing season.

Floodplain refers to the land bordering a stream or river that is subject to flood stage inundation, and **alluvial** refers to soil deposited by concentrated running water (Soil Survey Manual, Part 629).

Watercourses are defined by the Connecticut General Statutes Ch. 440 Sections 22a-36 and 22a-45 (as amended) to include rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private. **Intermittent watercourses** are a type of watercourse that typically do not flow year-round, and are specifically defined within the CT statutes by the presence of a defined permanent channel and bank, and the occurrence of two or more of the following characteristics:

- a) Evidence of scour, or deposits of recent alluvium or detritus;
- b) The presence of standing or flowing water for a duration longer than a particular storm incident;
- c) The presence of hydrophytic vegetation.

Uplands are land areas that are not inland wetlands, watercourses, or subject to tides.

The **soil series** is a soil label that refers to the lowest category of the National Soil Classification System. It is used as a specification for identifying and classifying soils within a soil map unit. The descriptions are standardized by the USDA-NRCS, and contain soil properties that define and distinguish them from the other soil series.

METHODS

Wetland or watercourse boundaries present within the survey area were investigated pursuant to the definitions provided by the Connecticut General Statutes (CGS Ch. 440 Sections 22a-36 and 22a-45) as amended.

All soils were sampled to a depth of at least 20 inches with spade and augur unless noted otherwise during a field investigation conducted on October 23, 2019. Soils were classified according to the nomenclature presented within the NRCS Web Soil Survey, with additional reference to the National Cooperative Soil Survey, and the local County Soil Survey.

The wetland boundaries were marked on site with pink flagging tape and/or stakes (Wetland Flags 0,1-16), and a sketch map prepared (see attached).

SITE DESCRIPTION AND DISCUSSION

The roughly 1.33 acre site is located on the east side of Morely Lane, Darien, CT. Land-use is residential. The site is located within CT DEEP local watershed basin 7000-43- , within the Southwest Shoreline subregional basin.

Wetland resources on site consist of a large forested Red maple swamp located at the rear of the property which spans over the rear of several other properties. A watercourse flows westerly and northerly through the swamp, where it becomes more confined.

DATA AND RESULTS

FIELD CONDITIONS: Soil moist. Temperature: 60 degrees F. Last significant precipitation event: rain – within 1 days.

WETLAND AND WATERCOURSE SOIL MAPPING UNITS

(3) Ridgebury, Leicester, and Whitman soils extremely stony

The Ridgebury series consists of very deep, somewhat poorly and poorly drained soils formed in till derived mainly from granite, gneiss and schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in low areas in uplands. Slope ranges from 0 to 15 percent. Saturated hydraulic conductivity ranges from moderately low to high in the solum and very low to moderately low in the substratum. Mean annual temperature is about 49 degrees F. and the mean annual precipitation is about 45 inches.

TAXONOMIC CLASS: Loamy, mixed, active, acid, mesic, shallow Aeric Endoaquepts

The Leicester series consists of very deep, poorly drained loamy soils formed in friable till. They are nearly level or gently sloping soils in drainageways and low-lying positions on hills. Slope ranges from 0 to 8 percent. Permeability is moderate or moderately rapid in the surface layer and subsoil and moderate to rapid in the substratum. Mean annual temperature is about 50 degrees F., and mean annual precipitation is about 47 inches.

TAXONOMIC CLASS: Coarse-loamy, mixed, active, acid, mesic Aerlic Endoaquepts

The Whitman series consists of very deep, very poorly drained soils formed in lodgement till derived mainly from granite, gneiss, and schist. They are shallow to a densic contact. These soils are nearly level or gently sloping soils in depressions and drainageways on uplands. Saturated hydraulic conductivity is moderately high or high in the solum and very low through moderately high in the substratum. Mean annual precipitation is about 45 inches (1143 millimeters) and mean annual temperature is about 49 degrees F. (9 degrees C.).

TAXONOMIC CLASS: Loamy, mixed, superactive, acid, mesic, shallow Typic Humaquepts

UPLAND (NON WETLAND) SOIL MAPPING UNITS

(75E) Hollis-Chatfield-Rock outcrop complex, 15 to 45 percent slopes

-rear of house sloping down to the wetlands

(73C) Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky

-front of house

The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till derived mainly from parent materials that are very low in iron sulfides such as gneiss, schist, and granite. They are shallow to bedrock. They are nearly level through very steep upland soils on bedrock-controlled hills and ridges. Slope ranges from 0 through 60 percent. Saturated hydraulic conductivity is moderately high or high. Depth to hard bedrock ranges from 25 to 50 cm. Mean annual temperature is about 9 degrees C, and mean annual precipitation is about 1270 mm.

TAXONOMIC CLASS: Loamy, mixed, active, mesic Lithic Dystrudepts

The Chatfield series consists of well drained and somewhat excessively drained soils formed in till derived from parent materials that are very low in iron sulfides. They are moderately deep to bedrock. They are nearly level through very steep soils on glaciated plains, hills, and ridges. Slope ranges from 0 through 70 percent. Crystalline bedrock is at depths of 20 to 40 inches (50 through 100 centimeters). Saturated hydraulic conductivity is moderately high or high in the mineral soil. Mean annual temperature is 51 degrees F (11 degrees C) and mean annual precipitation is 38 inches (1194 millimeters).

TAXONOMIC CLASS: Coarse-loamy, mixed, superactive, mesic Typic Dystrudepts

The Charlton series consists of very deep, well drained loamy soils formed in till derived from parent materials that are very low in iron sulfides. They are nearly level to very steep soils on till plains and hills. Slope ranges from 0 to 50 percent. Saturated hydraulic conductivity is moderately high or high. Mean annual temperature is about 10 degrees C and mean annual precipitation is about 1194 mm.

TAXONOMIC CLASS: Coarse-loamy, mixed, active, mesic Typic Dystrudepts

LIMITATIONS

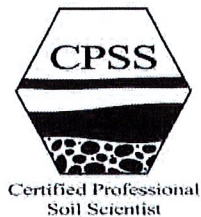
All observations and conclusions within this report are opinion, and are based upon the field conditions at time of investigation and best professional judgment. Field conditions may change over time. All wetland boundary lines established by the undersigned Soil Scientist are subject to change until officially adopted by the appropriate local, state and federal regulatory agencies.

CERTIFICATION

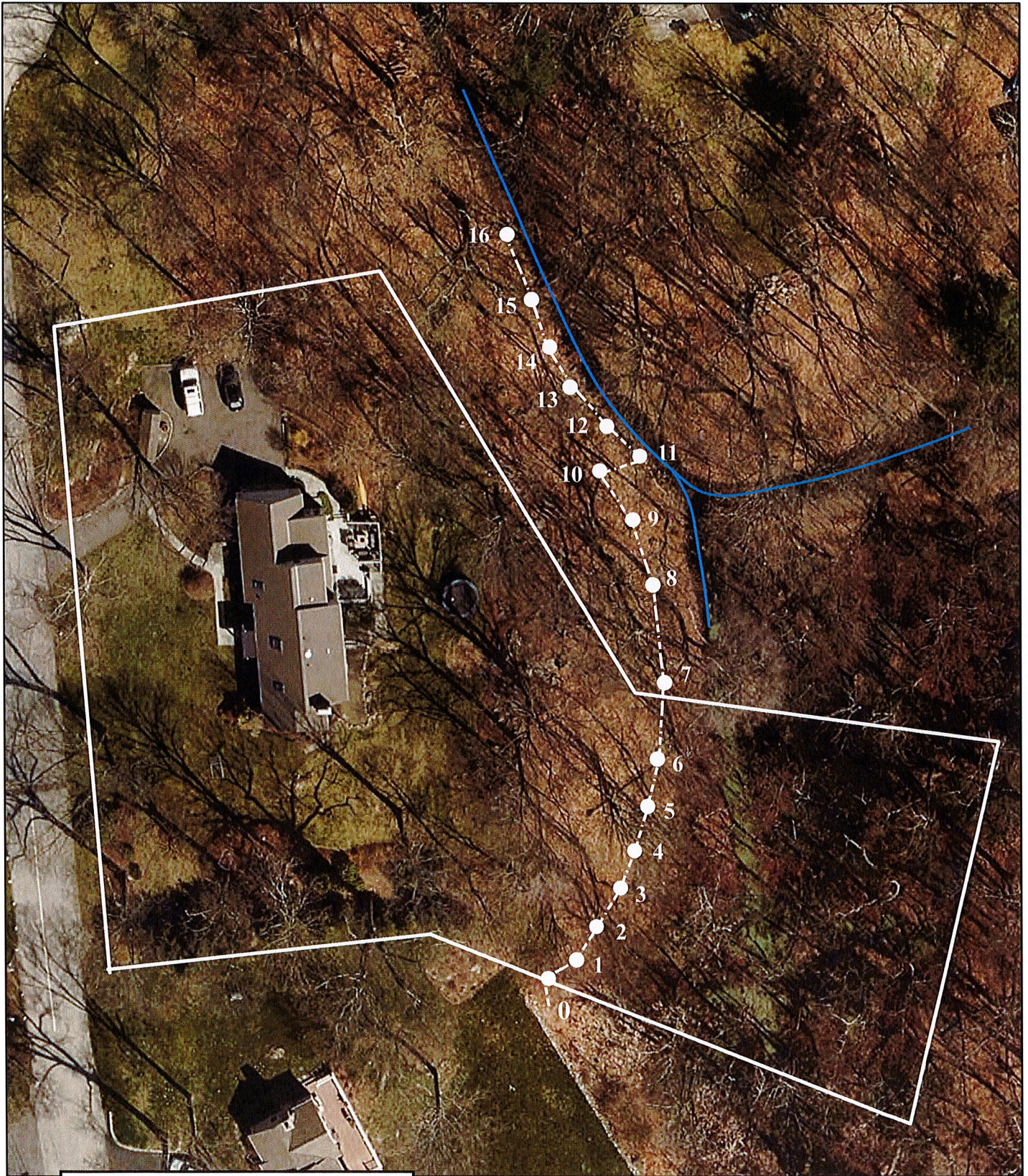
Signed,



Steven Danzer Ph.D., Certified Professional Soil Scientist (CPSS #353463)



40 Morley Lane, Darien



Sketch Map - not to scale
See report for methods
Steven Danzer Ph.D., Soil Scientist
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0 25 50 100 Feet

1 inch = 50 feet



North